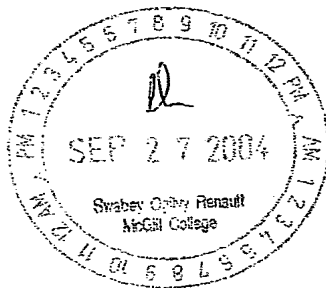


PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To: *ce*
OGILVY RENAULT
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Montreal, Québec H3A 2Y3
CANADA



NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year) 23.09.2004

Applicant's or agent's file reference
6078-10PCT ✓

IMPORTANT NOTIFICATION

International application No.
PCT/CA 03/01100

International filing date (day/month/year)
22.07.2003

Priority date (day/month/year)
22.07.2002

Applicant
UNIVERSITE DE SHERBROOKE et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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23 SEP 2004

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Applicant's or agent's file reference 6078-10PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/CA 03/01100	International filing date (day/month/year) 22.07.2003	Priority date (day/month/year) 22.07.2002
International Patent Classification (IPC) or both national classification and IPC C12P7/00		
Applicant UNIVERSITE DE SHERBROOKE et al.		



- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 09.02.2004	Date of completion of this report 23.09.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Lejeune, R Telephone No. +31 70 340-2347 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/CA 03/01100**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-6 as originally filed

Claims, Numbers

1-6 received on 23.06.2004 with letter of 23.06.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/CA 03/01100

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-6
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-6
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations

see separate sheet

V. Reasoned statement (Continuation)

Reference is made to the following documents:

D1: WO 91/14427 A (MARTEK CORP) 3 October 1991 (1991-10-03)

D2: LOMBARDI A T ET AL. MARINE ECOLOGY PROGRESS SERIES, vol. 77,
no. 1, 1991, pages 39-47

The application deals with a method for increasing the production of polyunsaturated fatty acids by algae, by application of a growth limiting factor.

NOVELTY (Art. 33(2) PCT)

The subject matter of claims 1-6 is new because D1 describes a method for increasing the production of oil (containing polyunsaturated fatty acids) by diatoms by restricting the silicate feed, possibly in combination with a nitrogen depletion, but not for *Chaetoceros gracilis* or *Skeletonema costatum*.

INVENTIVE STEP (Art. 33(3) PCT)

The subject matter of claims 1-6 does not involve an inventive step for the following reasons:

D1 describes a method for increasing the production of oil containing polyunsaturated fatty acids (e.g. EPA) by heterotrophic diatoms. The increased oleogenesis is obtained by timing of the imposition of a silicon deficiency. The feeding of silicate is stopped 12 to 24 hours after nitrogen depletion. It is common knowledge that the exponential growth phase stops once one of the nutrients is depleted. The diatoms then enter an oleogenic phase wherein enhanced amounts of edible oil containing EPA are more rapidly synthesized.

The only difference between D1 and the present application is the species of heterotrophic diatoms (*Chaetoceros gracilis* or *Skeletonema costatum*) which is used. D1 is not restricted to any specific species. In fact D1 states (page 6, line 1) that any diatoms capable of producing EPA can be used. Furthermore, there is no reason why *Chaetoceros gracilis* or *Skeletonema costatum* should not behave in the same manner to silicate deprivation as the diatoms disclosed in D1. Furthermore, it is known from D2

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/CA 03/01100

that silicon stress causes accumulation of triglycerides in *Chaetoceros gracilis*.

Therefore, the subject matter of claims 1-6 does not involve an inventive step.